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A class of Bol loops with a subgroup of index two

Comment.Math.Univ.Carolinae 45,2 (2004) 371-381.

Abstract: Let G be a finite group and C_2 the cyclic group of order 2. Consider the 8 multiplicative operations $(x, y) \mapsto (x^i y^j)^k$, where $i, j, k \in \{-1, 1\}$. Define a new multiplication on $G \times C_2$ by assigning one of the above 8 multiplications to each quarter $(G \times \{i\}) \times (G \times \{j\})$, for $i, j \in C_2$. We describe all situations in which the resulting quasigroup is a Bol loop. This paper also corrects an error in P. Vojtěchovský: On the uniqueness of loops $M(G, 2)$.

Keywords: Moufang loops, loops $M(G, 2)$, inverse property loops, Bol loops

AMS Subject Classification: 20N05